1:Williams E,G-5 (1923-1925) 1930
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II

ENVIRONMENT

The Country

133 THE homogeneity of the Orokaiva in language, culture, and physique may be due in some degree to the nature of their country and its boundaries. The plain of the Northern Division is bordered on the west by the Central Range with its spurs and foot-hills—considerable mountains in themselves; on the south by the Hydrographers and the cluster of which Mount Lamington is the centre; and on the east by the sea. Its northern boundary is roughly speaking the river Eia. But between the Eia and the northern neighbours of the Orokaiva there rises a succession of small but difficult ridges, the last of which descends almost precipitously to the narrow valley of the Waria. In fine it might be said that the country of the Orokaiva was more or less completely encompassed on the landward side by mountains, and was thus effectively fenced off from its neighbours.

Near the southern border of the plain there stretches out a process towards the west, a well-populated valley, watered by numerous tributaries of the Kumusi, and extending towards the Government station of Kokoda. Taking this into account the total extent of country whether plain or piedmont, in which the Orokaiva have established their homes, might be set down at about 1,800 square miles. A certain proportion of this is no more than trackless swamp; but by way of compensation there are wide border areas of mountain and hill which, though uninhabited, are visited by hunting parties and thus make their contribution to maintenance.

The great majority of the Orokaiva are plainsmen. Their country has been built up by sediments borne down from the mountains and now consists of a wide plain which slopes towards the sea coast at a barely perceptible gradient. A few lonely hills on the western side, like islands in a calm

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133 sea, break the almost absolute level of the plain; and from the old German boundary down to the mouth of the river Opi a low irregular range marks the line of the coast. But except for these features the plain is remarkable for its flatness. Seen from the summit of one of the bordering hills, basking in the haze and sunshine of the eighth meridian, it yields a peculiar impression of placidity which proves to be somewhat oddly at variance with the character of its inhabitants.

Along its western margin the hills stand up rather abruptly from the plain; but in the south they are approached by long sweeping slopes, scored by ravines and rivers, yet affording extensive areas of fertile land. This piedmont area, formed by the northern slopes of Lamington and the Hydrographers, is closely populated and, in comparison with others, closely cultivated; and here the innumerable garden clearings, relieving the close monotony of the bush, make it possible to take in the beauty of the surroundings. With its comparatively bracing climate and the charm and opulence of its scenery, this region may be counted among the most fortunate of Papua. A somewhat discouraging contrast is found in the forests of the plain proper, which are sometimes gloomy and water-logged. In many parts the land degenerates into sheer swamp; in others it is low-lying and of wholly inferior quality. In fact it is a matter for wonder that an environment so depressing to the European sojourner should produce so small a trace of depression on its native inhabitants.

The Rivers

Through this wide alluvial tract of the Northern Division there flow, pursuing a north-easterly course with a noticeable curve towards the sea, some half-dozen very considerable rivers. Among these the Mambare is the greatest and the Kumusi the next. Both of them have their sources far up in the mountains and bring down huge volumes of water, flowing steadily up to their very mouths. Swift and wholesome in their middle reaches, they become sluggish and meandering when once they have left the hills.

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The Mambare and Kumusi are navigable by launch, the latter as far as Bogi, where in mining days the stores used to be put ashore some fifty-five miles from the mouth. But here already the flow of the stream is too strong for native transport, and canoes are rarely seen among the people of the neighbourhood.

While the Mambare and Kumusi are both powerful and impressive rivers they do not possess the same charm as the lesser Gira and Opi. Of the Gira Sir Wm. MacGregor, having admired the landscape of scattered hills and the elevated and fertile banks with their frequent villages, concluded that it was 'the most populous and certainly by far the most pleasant of our north-east coast rivers'.[1]

Sir George Le Hunte was sufficiently charmed by the lower Opi to write:

> 'I do not recollect ever being on a more beautiful stream. The banks lined now with the handsome dark-leaved nipa palms springing from the water, now with the spreading sago palm with its curious candelabra-shaped flowers rising straight above it, here a village landing-place with a group of tall graceful areca palms, across which a leaning cocoanut would curve above a cluster of red and golden crotons. . . . The water a deep brown, on which the reflections were so vivid that it was sometimes difficult to distinguish the real from the image. . . .'[2]

Had it been possible for Sir George to ascend the river further than 'about six miles', he would have found a strong flowing stream whose rocky bed is visible through its swift transparency, and which is alternately overshadowed by tall forest or exposed to the sunshine in some broad expanse of rapids; and he might well have been tempted to write with equal vividness and still more enthusiasm.

The northern rivers, however, do not always bear this idyllic aspect. They are subject to sudden rise, and the clear stream of yesterday is transformed overnight into a brown swirling flood, sweeping down masses of forest wreckage and rising over its banks to cover the surrounding country. At such a time it is hardly possible to stir abroad except on canoes or rafts, and some time after the subsidence of the water one may not be surprised to find one of these stranded high and dry among the trees.

[1] *Annual Report*, 1896–7, p. 31. [2] *Annual Report*, 1898–9, p. 21.

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133 731 The experience of a Government official in the early days will show to what extent these floods may go:

'From the date of our arrival (Oct. 12) until the end of May we had one long series of floods in the Mambare River. Scarcely a week passed without a flood, and sometimes we had five or six consecutively at night. On six or eight occasions the floods were exceptionally heavy, and the water rose from two to three feet above the level of the banks. The highest ground is immediately adjacent to the river, for in the forests a short distance back the water was many times 6 and 8 feet deep.' [1]

The rapidity with which the flood-waters sink is somewhat surprising when we consider the very gradual fall of the ground. Sometimes, it appears, the damage to native gardens may be serious, but this is not often so; and the pile-built village, although often enough within reach of the flood, sustains no permanent injury.

The Seasons

132 The floods belong to the 'North-West' season, i.e. they occur roughly speaking between October and March, when the north-west monsoon is blowing. This is the period of greater rainfall throughout the territory.

Reports published in 1922 give the following results for the three Government stations in the Northern Division.[2]

Station.	*Period.*	*Mean Rainfall (Annual).*	*Three Wettest Months.*
Buna	12 years	113 in.	Nov., Dec., Jan.
Kokoda	12 „	131 „	Nov., Jan., Feb.
Ioma	11 „	161 „	Dec., Jan., Mar.

The difference between the 'North-West' and the 'South-East' seasons is fairly well marked, though it is one of rain, temperature, and humidity, rather than one of wind, as the names would imply. Whatever winds may fly overhead there is an almost dreary stillness in the forests of the plain,

[1] John Green, Government Agent, in *Annual Report*, 1895–6, p. 77. The writer adds: 'The natives during the heavy floods had to sleep in their canoes.' It may be remarked that such a situation would be entirely exceptional, for the flood-water very rarely reaches the floor-level of the house.

[2] *Annual Report*, 1921–2, p. 87.

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(*a*) On the Middle Opi

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(*b*) The Village of Poho

PLATE III [facing p. 22]

2: Williams E, G-5 (1923-1925) 1928
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2. *Environment and the Food Quest*

133 The Northern Division, peopled by the Orokaiva, is one of the favoured regions of Papua. From mountain boundaries on the inland side—the Central Range on the west, Lamington and the Hydrographers on the south—a wide alluvial plain slopes very gradually down to the sea. A number of rivers pursuing a north-easterly course and running almost parallel, divide this plain at curiously equal intervals: from south to north they are the Girewo, Kumusi, Opi, Mambare, and Gira. Except for abrupt but shallow river terraces and a few island hills, this northern plain is almost flat with a hardly perceptible seaward slope. Viewed in the afternoon from one of the hills on its western border and dimmed slightly by a tropical haze, it resembles a perfectly calm sea, whose further margin fades unnoticed into the real sea on the east.

Whereas the foot-hills of the Central Range rise somewhat steeply from the level plain, those of Mount Lamington and the Hydrographers descend in a broad comfortable sweep intersected by ravines and bounding rivulets. Thickly populated and with innumerable garden-clearings, this piedmont area of the Northern Division is perhaps one of the most fertile and beautiful in all Papua.

134 But though here the soil is comparatively rich and well drained, it is often of poor quality on the plain proper. Sometimes sandy it is more often soggy and clayey, and where the vegetation is cleared it will become in the dry weather a hard, light-coloured earth—so hard as almost to defy the gardener's simple digging-stick. On the 137 lower reaches of the rivers are stretches of sago swamp of an extent not fully known; and along the coast belts of nipa and mangrove.

By far the greater part of the Northern Division is covered with forest. Very extensive areas have been at one time or another cleared for gardens, and here the timber is lighter, and from the forester's view-point

2: Williams E, G-5 (1923-1925) 1928
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probably useless. In the neighbourhood of Dobodura behind Buna and of Ambasi in particular, but sporadically over the whole Division, are to be seen wide stretches of grass country,[1] very beautiful with their copses and belts of wood, but at present entirely unproductive, save that they harbour a good deal of game which is hunted at the annual burning.

The climate in the Northern Division is not worse than elsewhere in Papua. The two seasons are well enough defined though the accepted names 'South-East' and 'North-West' are scarcely applicable in this part of the territory. Indeed, the interior of the forest-covered plains seems seldom visited by strong winds from any quarter, and on either side of the track high trees will stand in an almost absolute stillness. When occasionally some overhead wind swoops down, it may do so with great violence, overthrowing the shallow-rooted trees or tearing down a litter of feebly-resisting branches.

The natives call the South-East season *Twira*, because it is first announced by the scarlet blossoming of the *Twira* tree, one of many that blush unseen by an unobservant European. It is a season of comparatively dry clear weather, sometimes of drought; of many brilliant days and star-lit nights, when one may be glad of a blanket; of dry tracks and transparent, fordable streams. The North-West they call *Tuperi*. This is the time of rains and plenty. The nuts of the *Tauga*, which blossomed at the beginning of the South-East, begin to fall. The weather is more oppressive and almost every evening the thunder is rumbling in the valleys of the range. The rain comes down towards evening, there are heavy falls in the mountains, and the rivers are brown and swollen.

The river may rise with extraordinary swiftness. Splashing over a shallow bed of rocks and pebbles, or pausing in some quiet pool overhung by trees but

[1] The grass referred to (*Imperata arundinacea*) is commonly known in Papua as *Kunukuru*, or 'pale grass'. It is presumably identical with *alang-alang* and grows to a height of 5 feet or more.

2: Williams E, G-5 (1923-1925) 1928
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illuminated to its depths by a broad shaft of sunshine, no more charming stream could be imagined than the upper Opi in dry weather. But if overnight the thunder has been very loud in the hills, the next morning may see the Opi a brown swirling flood, bearing along uprooted trees and piling them one upon another against every obstacle. It will soon overflow its deep banks, and the surrounding bush is submerged and impassable. One may be astonished, passing along a dry track some few days after such a flood, to find a raft or canoe left high and dry among the trees, or to see, head-high on the trunks and leaves, traces of mud left by the last inundation.

The water will subside rapidly with very little damage done. The occasional flood is rather welcomed than feared, for it is the hunter's opportunity. The small game of the forest—rats, hedgehogs, the little marsupial called *Aisi*—are driven from their shelters and are easy prey for the native dogs. There are shallow depressions and hollows which in flood-time become water-courses, and in these men and women are using their scoop-nets or setting their cage-like traps for the insignificant fish which are making their way back to the river with the falling water. Last and least there are the frogs who 'come down from the trees' in the flood-time, to be finally caught in the hands of the women. Sometimes the flood does some damage in the garden; but the water rises and falls so quickly and withal so steadily that it does little actual violence, and the taro seems quite able to survive a submergence. On the whole we are prone to over-estimate the ill effects of the flood in this district.

A far more serious affliction is the occasional drought. After a long spell of fine weather the garden ground becomes dry and hard; the taro leaves droop and the young shoots die off. Even the swamps subside and sago-making is made difficult by lack of water. The hunting of small game and the fishing in creeks are hindered. The result of all this may be a real scarcity. To eke out their supplies the people will have recourse to fern fronds,

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[End Map]

2: Williams E, G-5 (1923-1925) 1928
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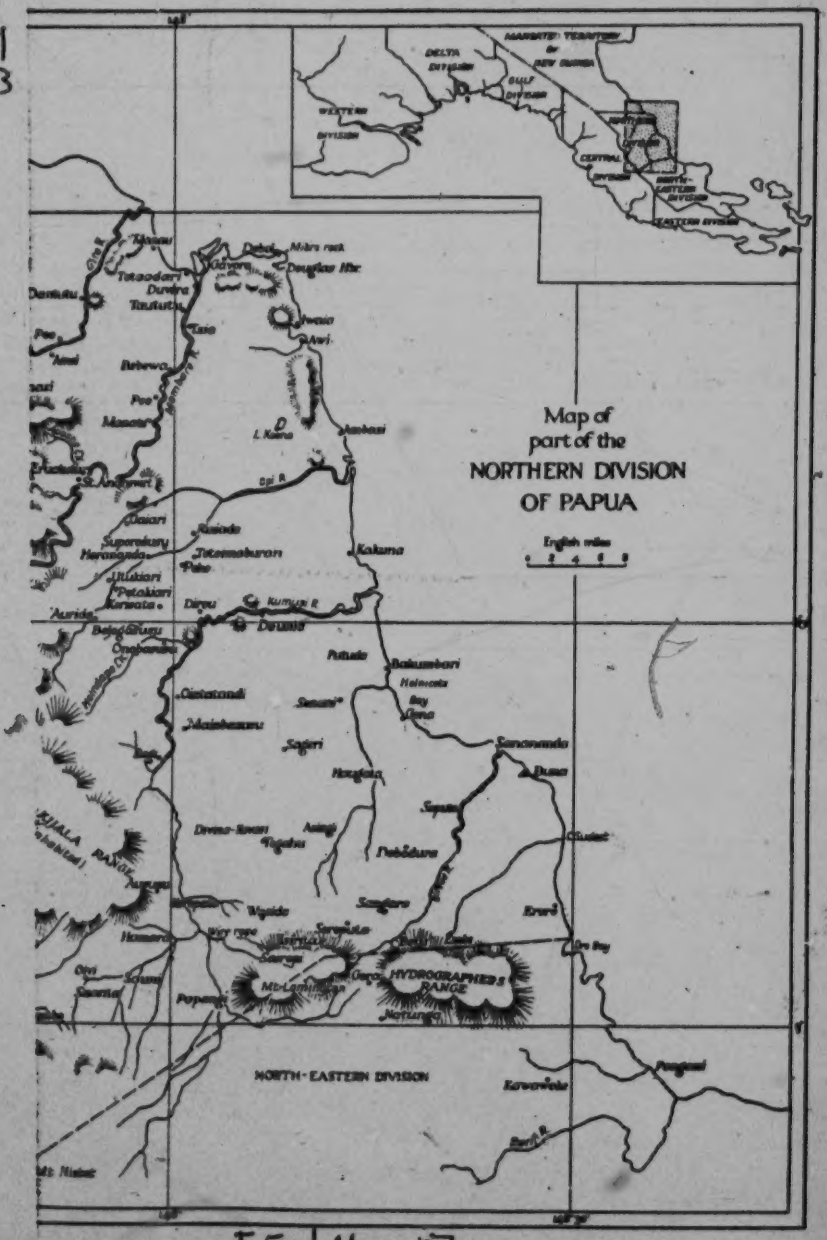

[End Map, B]